

1st BCS CMSG Conference 2003
Implementing CM Everywhere- Change, Configuration & Content
Management

**Initial results from the CMSG survey regarding the benefits of Change,
Configuration and Release Management**

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1. Introduction

The aims of the British Computer Society Configuration Management Specialist Group (BCS CMSG) include to “Promote the benefit of Configuration, Change and Release Management, (CC&RM), within the industry at large”. Many IT programmes and services fail to deliver the expected products and benefits because of non-existent or inadequate CC&RM. In many cases dramatic improvements can be made by the adoption of programmes of CC&RM as an essential building block in establishing a controlled environment for IT project management, software development, testing, operations/service management and maintenance.

Despite the potential successes of CC&RM, managers within both the private and public sectors are often struggle to sell and realise the benefits of applying best practices. This often due to insufficient empirical evidence of the need for these disciplines, the related benefit measures and their management. The focus of this study is to examine current industry practices of CC&RM across the systems development life cycle and the associated benefits that add value to the products, systems and services being delivered and supported.

This study is the initial part of the overall research programme. The research programme will provide a framework for examining the validity of the assertions contained above, to examine some of the interdependencies within the IT management process and to provide practitioners with a method for evaluating the anticipated benefits of CC&RM in the context of a specific organisation. We anticipate that this will allow for a more professional approach to managing the IT operations portfolio in general and CC&RM in particular with a resultant boost to the activities and membership of the Configuration Management Specialist Group (CMSG). By providing and publicising an exemplar of best practice it will encourage the adoption of more rigorous policies for benefits

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management and project evaluation by the BCS membership members and the wider IS community.

Through empirical research, the linkages and causal factors in the processes will be examined and relevant metrics collected. The programme will then assess the utility of a number of approaches for evaluating implementations, including algorithmic (formula lead) and simulation models.

Involvement from industrial collaborators is an essential part of the programme. Several vendors, consultants and executives from blue chip companies have provisionally agreed to collaborate by providing data, cases and access to projects and programmes.

2 Research Questions

2.1 Definitions

Configuration Management can be described in general terms as the act of managing the arrangement of parts of a product (CCTA 1994). Historically it has been used mainly in the military and ship building industries. However it has more recently become a discipline in its own right.

Configuration Management as defined by Bersoft et al (1980) as the “discipline of identifying the components of a continuously evolving system (configuration) at discrete points in time for the purposes of controlling changes to the configuration, and maintaining the integrity and traceability through out the system life cycle.”

A more IT specific definition of Configuration Management is given by CCTA (1994):

“a discipline which can be used for controlling all components of an IT infrastructure. In Configuration Management terminology, IT infrastructure components are called Configuration Items (CI). CIs include hardware items, software components, network items, documentation and any part of IT infra structure or items associated with it which the organisation wishes to control.”

Configuration Management derives its objectives from the organisations’ IS/IT strategy. As Buckley (1993), CCTA (1994), and Field and Keller (1998) put it, the concept ‘Configuration Management’ is applying technical and administrative tools to:

- Sort out and document the characteristics and versions of the CIs.
- Audit CIs with a view to ascertaining compliance to specification(s),
- Interface control documents and other parameters.
- Control changes in CIs as per desired specification(s).
- Record, produce and provide information for the overall management of CIs.

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The growing complexity of the type and number of CIs and the revision of existing software in large and complex organisation has made it necessary for Configuration Management to be supported by a *software tool* that is capable of maintaining a Configuration Management Data Base (CMDB).

Software Configuration Management (SCM) in the software industry is supported by commercial products that range from SCM tools to SCM systems. These products, through their combination of functionality, render automated support for version control, environment management, process control, software build management, release management, product distribution and change management.

Configuration management as a discipline is made up of *four functions*: configuration identification, configuration control, configuration status accounting and configuration auditing (Kelly 1996)

2.2 Purpose of the study

The focus of this study is to examine current industry practices of CC&RM across the systems development life cycle and the associated benefits that add value to the products, systems and services being delivered and supported.

3. Research Methodology

3.1 Data Collection

The Information Management and Modelling research Group (IMMaGe), at South Bank University will conduct an initial survey of (it is hoped) over 100 members of the British Computer Society Configuration Management Specialist Group (BCS CMSG), itSMF members and other organisations known to be interested in change, configuration and release management during September 2002 to June 2003.

3.2 Questions for Analysis

The study will be designed to address interrelated research questions aimed at understanding:

- What benefits do senior managers, programme managers, project managers, development managers, service managers and their staff perceive that there are from implementing change, configuration and release management within their organisations and how these benefits are measured.
- How the function to support these processes are structured within organisations and how effective these processes are be perceived to be.

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- Whether the functions delivering change, configuration and release management are perceived as adding value to organisations, products and services
- To determine the extent to which tools are used to support the processes and which tools are most commonly used

3.3 Analysis Techniques

The data collected was analysed using SPSS 10.0, a specialist statistical analysis package. The package permits a full range of statistical analysis to be performed including cross-tabulation between data items and a full range of display techniques. For this initial report a simple style is adopted and only the 'valid' sample are analysed in percentage terms. No cross-tabulations are presented. This is because the validity of all statistics increases with sample size and the samples for some data elements will be small. As the sample population arises as more people complete the questionnaire these tools will be deployed.

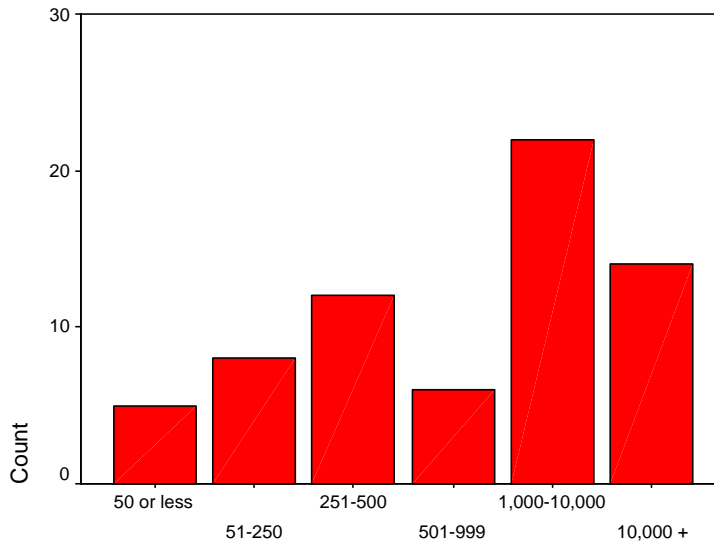
3.4 Summary of Results of Analysis

The results of all the questions are presented below some of the most important results are Q7 in that less than a quarter of respondents were able to quantify *any* of the benefits of CC&RM. In a similar vein only a third felt that their organisation had a consistent process for configuration management, only 42% felt that their organisation had a co-ordinated approach for managing configurations across the life cycle and only 22% felt that they had a co-ordinated approach for managing configurations across boundaries with external parties. An unsympathetic culture and lack of resources were felt to be the biggest barriers to applying CC&RM more effectively. Overall satisfaction with the 'value for money' offered by CC&RM was high but given the answers given to Q7 it is difficult to see how this can be an objective measure.

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3.5 Detailed Results of Analysis

Q1: How many people in your organisation?

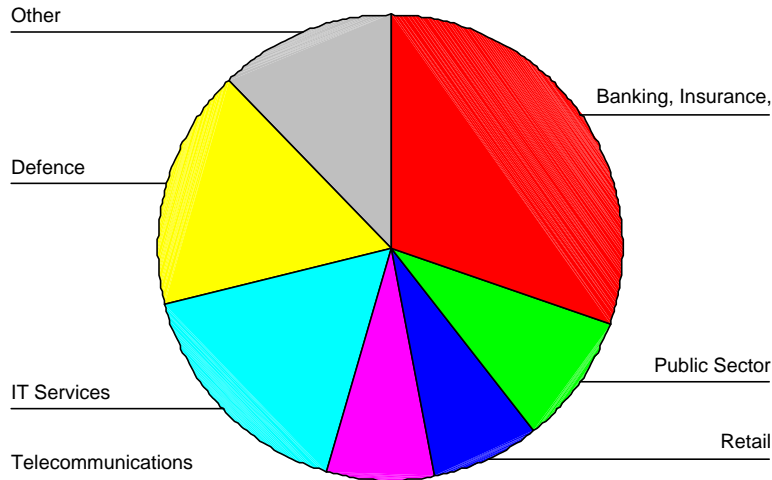


Q1: How many people in your organisation ?

As may be seen from this chart there is a reasonably even response from individuals employed by organisations of varying size, the largest single segment is from employees of organisations with 1,000 to 10,000 persons.

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Q2: What is the main business activity of your organisation?



As chart the three most important industry sectors from respondents are banking, IT services and defence, but with a fair number of respondents from other significant industry sectors.

Q3: Does your organisation do CM?

		Valid Percent
Valid	Yes	40.3
	Some areas	53.7
	No	6.0
	Total	100.0

Given the distribution to those known to be interested in CC&RM it is accepted that this sample is inherently biased sample of the IS community. It is interesting to note that the majority of the respondents only carried out CC&RM in some areas of their organisation.

Q4: Do you work in a specialist team?

		Valid Percent
Valid	Yes	64.3
	No	35.7
	Total	100.0

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Q5: Is your role in change and configuration management full time?

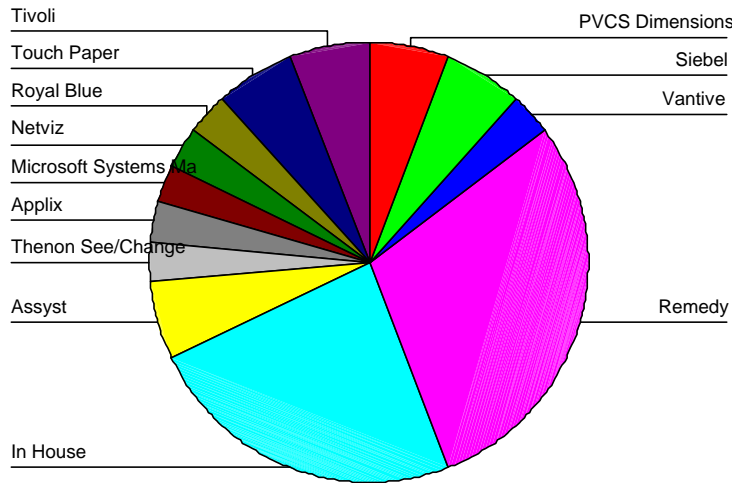
		Valid Percent
Valid	Yes	52.7
	No	47.3
	Total	100.0

Q7: Have you been able to quantify any of the benefits of CC&RM?

		Valid Percent
Valid	Yes	23.5
	No	76.5
	Total	100.0

In one of the most significant findings of the survey less than a quarter of respondents were able to quantify *any* of the benefits of CC&RM (let alone perform a full cost/benefit analysis).

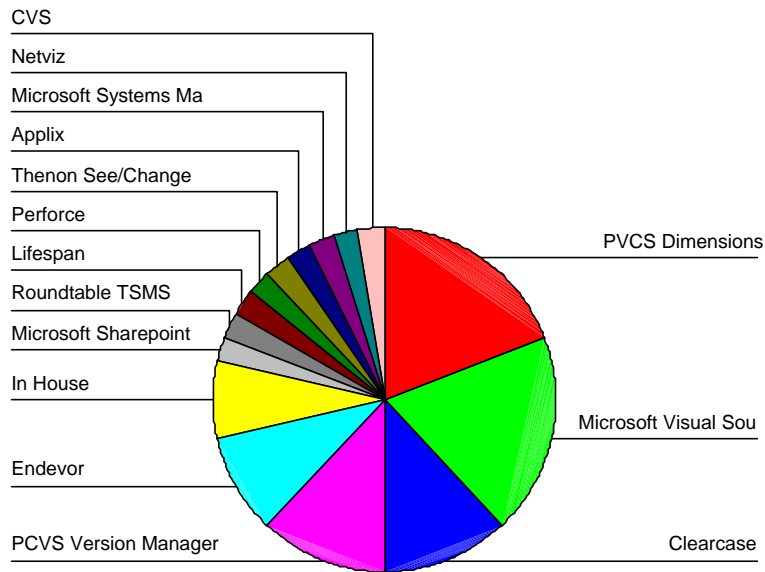
Q8: Please list any configuration management tools your organisation use
a) Service Management Tools



As chart the predominant service management tools identified are 'Remedy'/(29.4) and various 'in house' tools/(23.5%) together accounting for more than 50% of respondents. A wide variety of other tools were identified by a small sample from the respondents.

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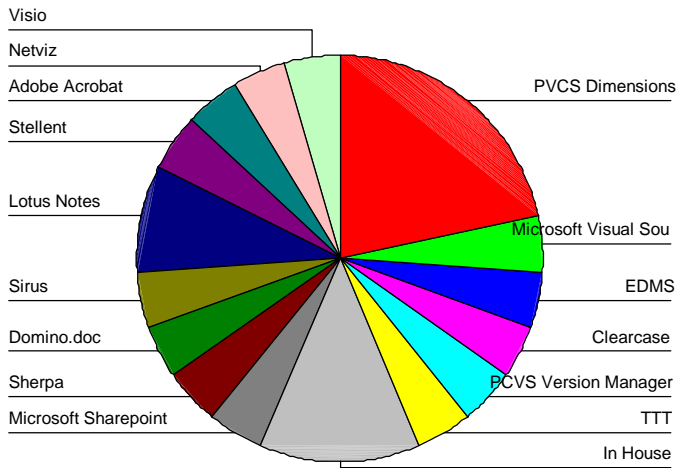
Q8: Please list any configuration management tools your organisation use
b) Software Configuration Tools



The two predominant software configuration tools identified were PVCS Dimensions (19.00%) and Microsoft Visual Source Safe (19.00%), Clearcase (11.9%), PVCS Version Manager (11.9%) and Endeavour (9.5%) were also significant. As well as 'in house' (7.1%) there were a large number of other tools identified by respondents.

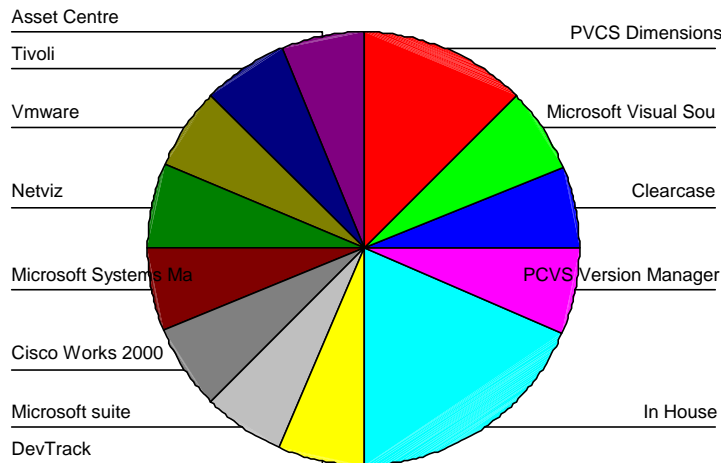
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Q8: Please list any configuration management tools your organisation use
c) Document Management Tools



The predominant document management tool identified was PVCS Dimensions (21.7%). Apart from 'in house' developments (13.02%) the only other tool with a fairly high market share was Lotus Notes (8.7%). As before a large number of tools were also identified by respondents.

Q8: Please list any configuration management tools your organisation use
d) Other tools for CC&RM



'In house' tools (18.8%) were most widespread other CC&RM tools used followed by PVCS Dimensions. A number of other tools had a 6.3% share of the sample.

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Q9: What public standards or best practices has your organisation adopted?

		Valid Percent
Valid	ITTL	29.4
	ISO 9001	55.9
	CMM	5.9
	Bootstrap.org	2.9
	IEEE	2.9
	BEM	2.9
	Total	100.0

The ISO 9001 standard was the most cited at 55.9% with ITTL at 29.4% following.

Q10: Do you feel that you have consistent process for configuration management?

		Valid Percent
Valid	Yes	34.0
	No	66.0
	Total	100.0

66% of respondents stated that their organisation did *not* have a consistent process for CM. A cause for concern and to be followed up in the later stages of our research.

Q11: What standards are being applied to your own team?

		Valid Percent
Valid	ITTL	50.0
	ISO 9001	43.3
	Bootstrap.org	6.7
	Total	100.0

Q12: Do you feel that you have a co-ordinated approach for managing configurations across the life cycle?

		Valid Percent
Valid	Yes	41.8
	No	58.2
	Total	100.0

As for Q10 (above), clearly a cause for concern and an area to be followed up in later stages of our research.

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Q13: Do you feel that you have a co-ordinated approach for managing configurations across boundaries with external parties?

		Valid Percent
Valid	Yes	21.8
	No	78.2
	Total	100.0

Raises similar concerns as questions 10 and 12.

Q14: What are the biggest barriers to applying CC&RM more effectively?

		Valid Percent
Valid	Culture	43.1
	Education/Knowledge	9.8
	Lack of mandate/commitment from Management	9.8
	Lack of resources	17.6
	Not having a centralised team	2.0
	Resistance to change	2.0
	Lack of appreciation of CM benefits	5.9
	Legacy systems seen as an overhead	2.0
	Time constraints	7.8
	Total	100.0

Culture and lack of resources are seen as the biggest barriers. Again an area to be followed up.

Q15: Please mark in one of the boxes below whether you consider that configuration management has been?

		Valid Percent
Valid	5	3.8
	6	9.4
	7	28.3
	8	26.4
	9	15.1
	Excellent value for money	17.0
	Total	100.0

Generally a high rating but a selective sample and, in the light of question 7, how can they tell?

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4.0 Conclusions

The survey results have so far thrown up some interesting results (see 3.4 above). As intended, it will also give us some key areas to probe in the follow up interviews. We would like to thank those who have completed the survey and those who have completed the survey and those who have agreed to participate in the follow up interviews. We would also encourage others complete the survey to increase its coverage and statistical reliability.

5.0 REFERENCES

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